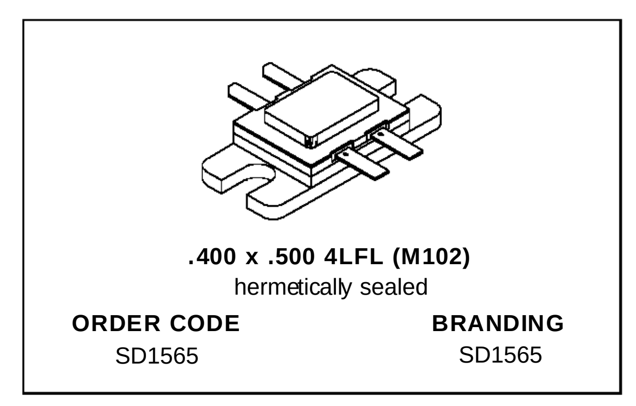


SD1565

RF & MICROWAVE TRANSISTORS UHF PULSED APPLICATIONS

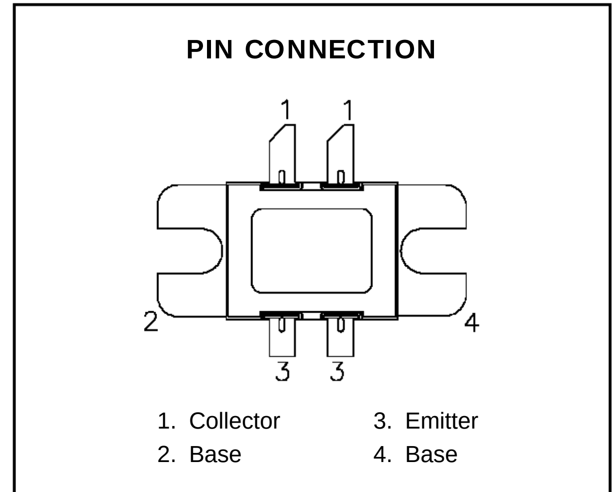
- 500 WATTS @ 250µSec PULSE WIDTH, 10% DUTY CYCLE
- REFRACTORY GOLD METALLIZATION
- EMITTER BALLASTING AND LOW RESISTANCE FOR RELIABILITY AND RUGGEDNESS
- INFINITE VSWR CAPABILITY AT SPECIFIED OPERATING CONDITIONS
- INPUT MATCHED, COMMON BASE CONFIGURATION
- BALANCED CONFIGURATION



.400 x .500 4LFL (M102)
hermetically sealed

ORDER CODE	BRANDING
SD1565	SD1565

PIN CONNECTION



1. Collector
2. Base
3. Emitter
4. Base

DESCRIPTION

The SD1565 is a hermetically sealed, gold metallized silicon NPN pulse power transistor mounted in a common base balanced configuration. The SD1565 is designed for applications requiring high peak power and low duty cycles within the frequency range of 400 - 500 MHz.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	65	V
V_{CES}	Collector-Emitter Voltage	65	V
V_{EBO}	Emitter-Base Voltage	3.5	V
I_C	Device Current	43.2	A
P_{DISS}	Power Dissipation	1167	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	– 65 to +200	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.15	°C/W

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 50 mA	I_E = 0 mA	65	—	—	V
BV_{CES}	I_C = 50 mA	V_{BE} = 0 V	65	—	—	V
BV_{EBO}	I_E = 10 mA	I_C = 0 mA	3.5	—	—	V
I_{CES}	V_{CE} = 30 V	I_E = 0 mA	—	—	15	mA
h_{FE}	V_{CE} = 5 V	I_C = 5 A	20	—	200	—

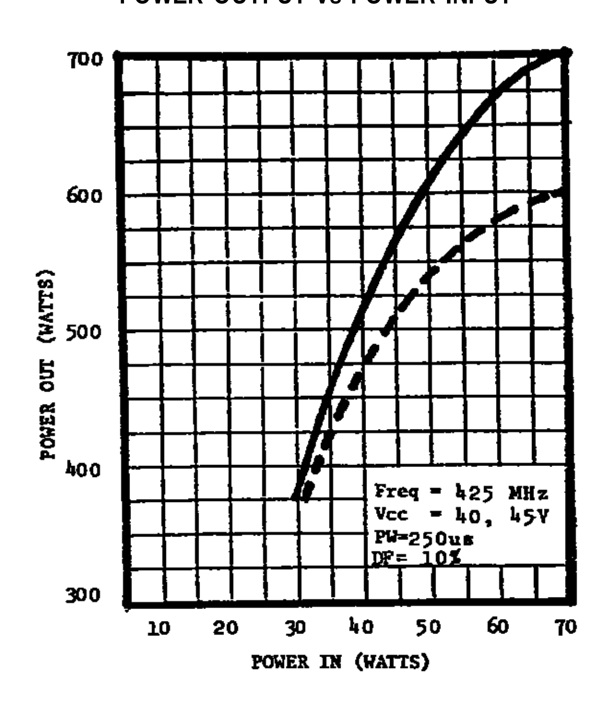
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 425 MHz	P_{IN} = 54 W	V_{CE} = 40 V	500	—	—	W
P_G	f = 425 MHz	P_{IN} = 54 W	V_{CE} = 40 V	9.7	—	—	dB
η_c	f = 425 MHz	P_{IN} = 54 W	V_{CE} = 40 V	50	—	—	%

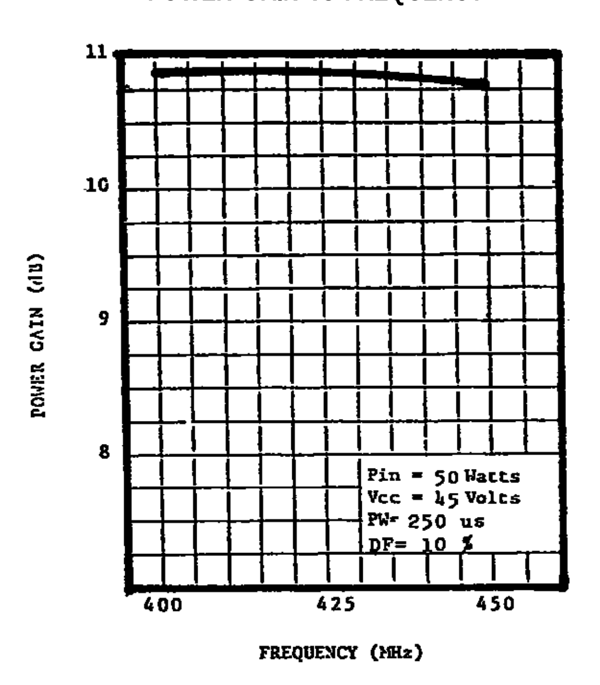
Note: Pulse Width = 250µSec, Duty Cycle = 10%
This device is suitable for use under other pulse width/duty cycle conditions.
Please contact the factory for specific applications assistance.

TYPICAL PERFORMANCE (P.W. = 250µS, D.C. = 10%)

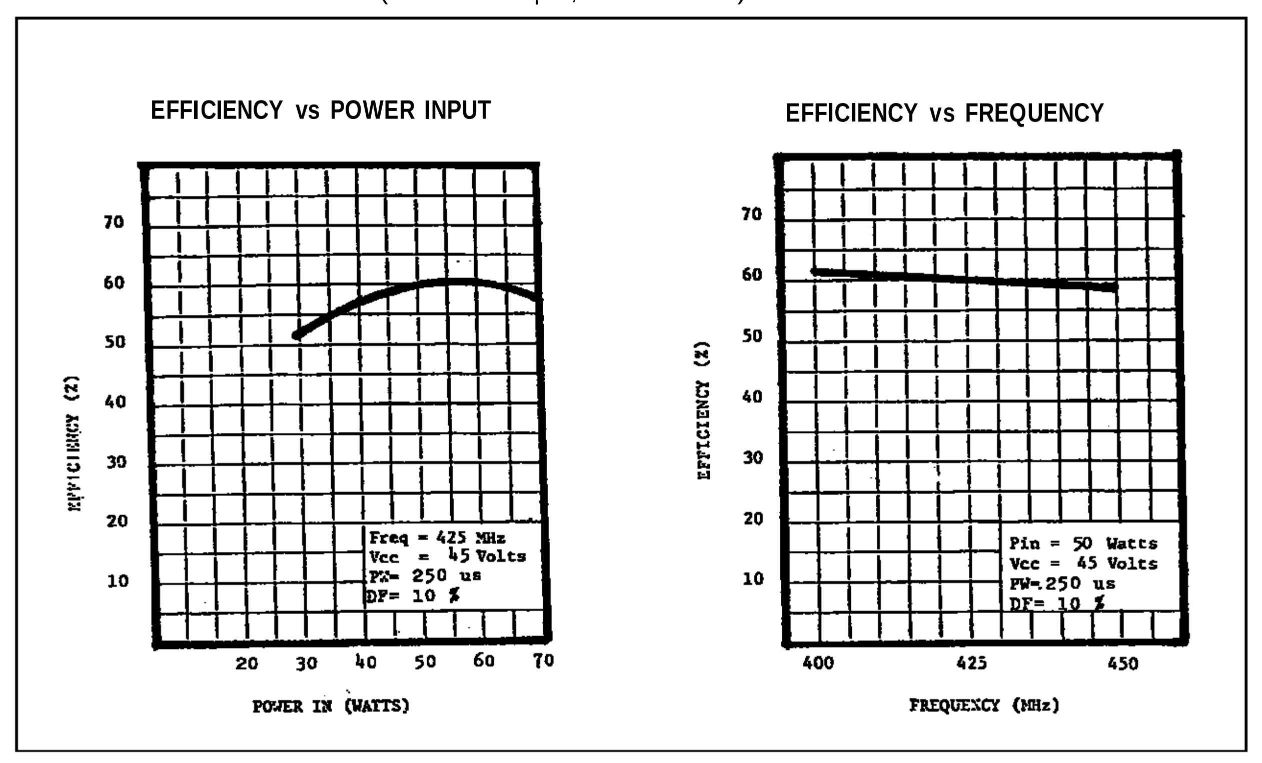
POWER OUTPUT vs POWER INPUT



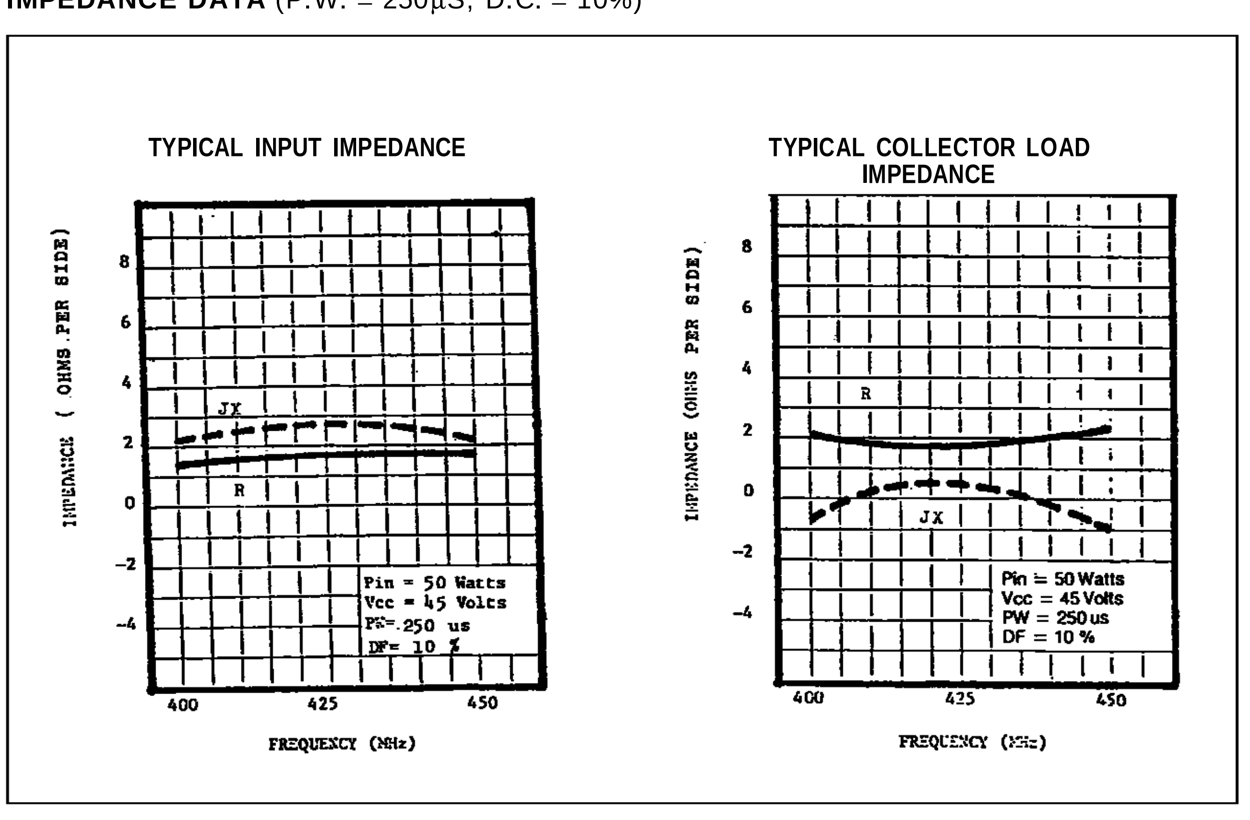
POWER GAIN vs FREQUENCY



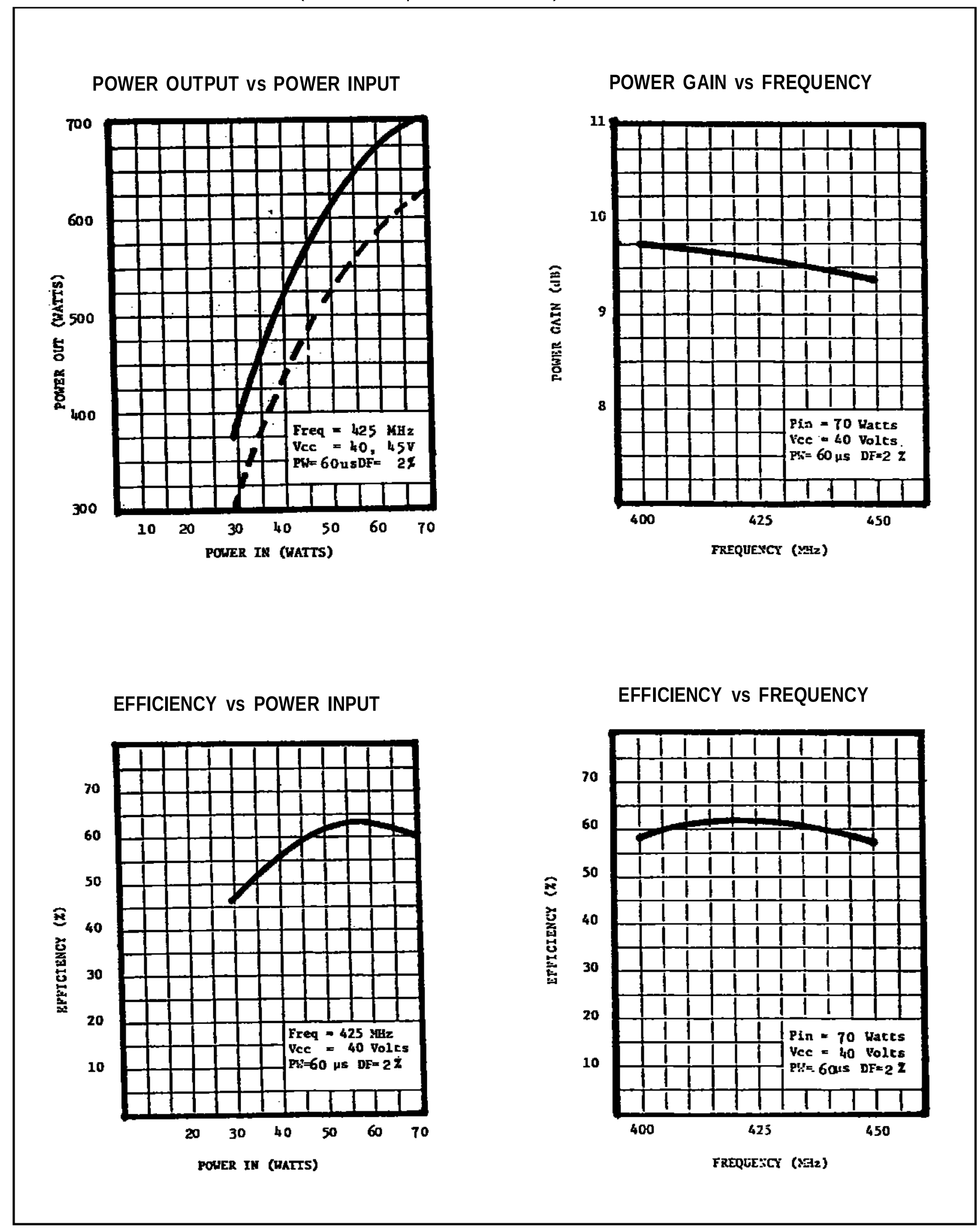
TYPICAL PERFORMANCE (P.W. = 250µS, D.C. = 10%)



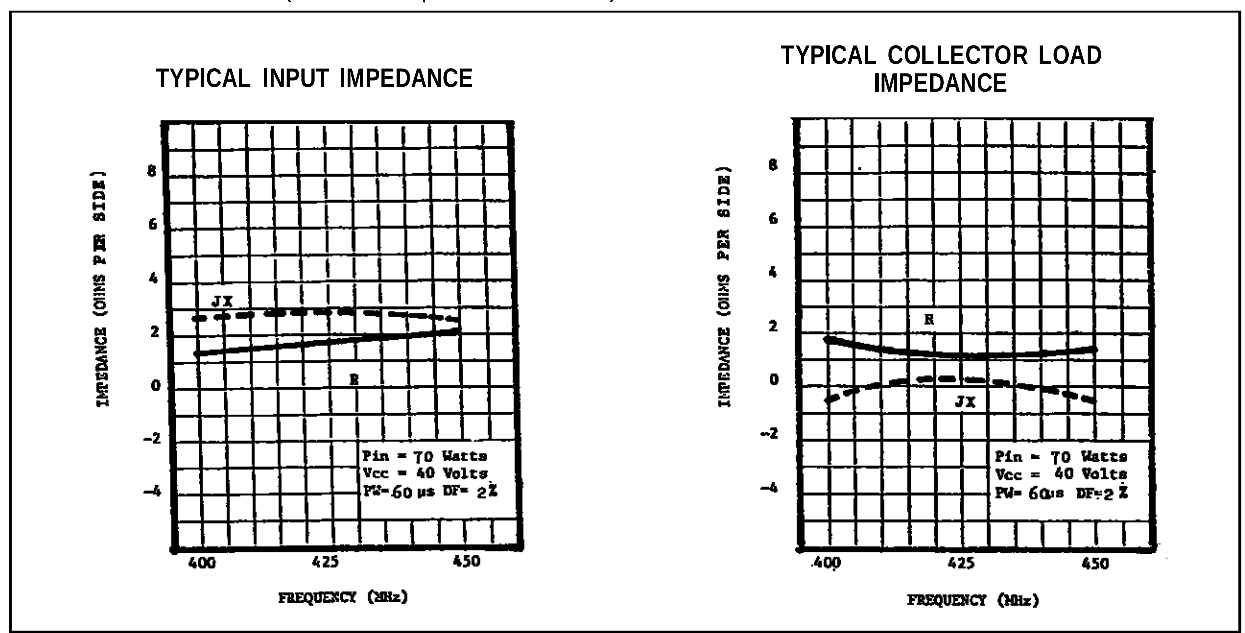
IMPEDANCE DATA (P.W. = 250µS, D.C. = 10%)



TYPICAL PERFORMANCE (P.W. = 60µS, D.C. = 2%)



IMPEDANCE DATA (P.W. = 60μS, D.C. = 2%)



TEST CIRCUIT

4.8" long 50Ω Semi rigid coax (Input & Output)

400-500MHz

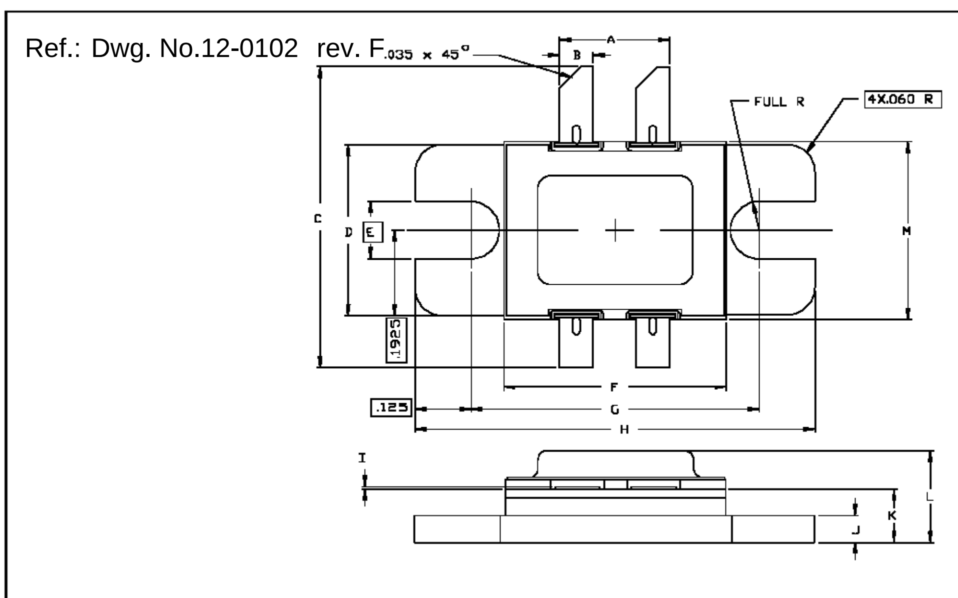
C3, C5	:	8pF 50 mil square
C4, C8	:	.4 - 4.5pF Johanson JMC #27273
C6	:	39pF 50mil square
C7	:	39pF Chip Capacitor
C9	:	20pF Chip Capacitor
C10	:	12pF Chip Capacitor
C12, C15	:	.1μF
C13, C16	:	1000pF Chip Capacitor
C14, C17	:	1000μF

L1, L2	:	1" PC #18 Tinned Wire (mounted flat to PC Board)
L3, L4	:	2T #18 Tinned Wire, 0.25" I.D.

Baluns are 4.8" UT-141 Coax, Spaced to fit from coax connectors to the 25 Ohm lines.

Note: 3M Epsilom 6 PC Board .030" Thick

PACKAGE MECHANICAL DATA



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.240/6,10	.254/6,45	K	.115/2,92	.130/3,30
B	.070/1,78	.080/2,03	L	---	.230/5,84
C	.780/19,81	.820/20,83	M	.395/10,03	.407/10,34
D	.380/9,65	.390/9,91			
E	.130/3,30				
F	.495/12,57	.507/12,88			
G	.640/16,26	.655/16,64			
H	.890/22,61	.910/23,11			
I	.002/0,05	.006/0,15			
J	.058/1,47	.065/1,65			